Application No. 10/824 247
Reply to Office Action of September 26, 2006

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IN THE CLAIMS

Meangraphend the claims as follows:

Claim 1 (Currently Amended): A steer-by-wire system comprising:

a steering handle disconnected mechanically from steerable road wheels;

a steering actuator responsive to a drive electric current related to a steering angle of said steering handle, and mechanically connected to said steerable road wheels for steering said steerable road wheels in dependence on the steering angle of said steering handle;

reaction force generating means for applying steering reaction force to said steering handle;

reaction force control means for controllably driving said reaction force generating means; and

drive electric current restraining means for restraining the drive electric current to said steering actuator while the steering actuator is in a state of being overloaded;

wherein said reaction force control means drives said reaction force generating means so the steering reaction force is controlled to correspond to the drive electric current applied to the steering actuator while the drive electric current restraining means does not restrain the drive electric current to said steering actuator, and so that while said drive electric current restraining means restrains the drive electric current to said steering actuator, the steering reaction force is increased to be larger than that corresponding to the drive electric current applied to the steering actuator when while the drive electric current restraining means does not restrain the drive electric current to said steering actuator.

Claim 2. (Previously Presented): The steer-by-wire system as set forth in Claim 1, wherein said drive electric current restraining means restrains the drive electric current to said steering actuator while the steering actuator is overloaded as a result of being heated beyond a predetermined temperature.

Claim 3. (Previously Presented): The steer-by-wire system as set forth in Claim 1, further comprising:

state notification means for notifying a vehicle driver of the change of state by making the ratio of the steering angle of said steerable road wheels to the steering angle of said steering handle smaller, while said drive electric current restraining means restrains the drive electric current to said steering actuator, than while the drive electric current restraining means does not restrain the drive electric current to said steering actuator.

Claim 4 (Currently Amended): A control method for a steer-by-wire system having a steering handle disconnected mechanically from steerable road wheels; a steering actuator responsive to a drive electric current related to a steering angle of said steering handle, and mechanically connected to said steerable road wheels for steering said steerable road wheels in dependence on the steering angle of said steering handle; a reaction force generating actuator for applying steering reaction force to said steering handle; reaction force control means for controllably driving said reaction force generating actuator; and drive electric current restraining means for restraining the drive electric current to said steering actuator while the steering actuator is in a state of being overloaded; said control program comprising the steeps of:

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detecting whether or not said drive electric current restraining means restrains the drive electric current to said steering actuator;

driving said reaction force generating actuator so that said steering reaction force is controlled to correspond to the drive electric current to said steering actuator while said drive electric current restraining means does not restrain the drive electric current to said steering actuator;

driving said reaction force generating actuator so that said steering reaction force is controlled to be increased to be larger than that corresponding to the drive electric current applied to the steering actuator when while the drive electric current restraining means does not restrain the drive electric current to said steering actuator, while said drive electric current restraining means restrains the drive electric current to said steering actuator; and

making the ratio of the steering angle of said steerable road wheels to the steering angle of said steering wheel smaller than that when the drive electric current restraining means does not restrain the drive electric current to said steering actuator, in said ordinary state while said drive electric current restraining means restrains the drive electric current to said steering actuator.